October to December 1972 - Progress Report

ERTS Proposal #106

GSFC I.D. #C0309

Principal Investigator: Dr. A.E. Strong

Title: Evaluation of ERTS Data for Certain Oceanographic Uses

A. Work Summary During Fourth Bimonthly Reporting Period (Three months during this period, to adjust to NASA-revised schedule received 11-01-72).

1. October Field Trip - 12-18 October 1972

A NOAA Buffalo Dehavaland Aircraft was instrumented with a multispectral camera and dual-channel IR scanner for this one week study. ~~Weather played a major role during the period as winter decided to provide a preview.~~ Nevertheless, two flying days were made 13 and 15 October covering the Rochester embayment region of Lake Ontario and western two-thirds of Lake Erie, respectively.

a. 13 October

Coincident with ERTS-1, three passes of the Rochester area were made to obtain contiguous imagery using the aircraft Daedalus scanner. Scattered clouds necessitated at 3,500-foot flight ceiling limiting our coverage more than was desired. Considerable detail was observed in both thermal and multispectral camera data. Soon after these overflights the NOAA ship ADVANCE II occupied several stations in the area obtaining in situ measurements to further coordinate both aircraft and satellite. A ground party collected a variety of measurements along the Rochester shoreline later in the day fro further collaborations.

Major features observed:

(1) Genesse River plume - cool/milky

(2) Power Plant effluent - hot

(3) Sewage outfall in lake - black/warm

b. 15 October

Taking advantage of nearly clear skies, the Buffalo aircraft flew most of the Lake Erie shoreline west of Long Point (Ontario) and Ashtebula, Ohio. ERTS-1 crossed Lake Erie while the Buffalo was imaging the Canadian Shoreline. Although no scheduled ship observations were obtained, some data is expected from vessels plying the lake. Shoreline observations were procurred by a ground party operating along the Canadian shore.

Major features observed:

(1) Thermal and sediment features off Pointe aux Pins and Pointe Pelee

[Significant Finding] *(2) A thick algal mat in the Bass Islands area several hundred feet wide and 10-15 miles long - a portion of this feature can be seen along the western edge of the ERTS imagery.

(3) A portion of the Cuyahaga River plume at Cleveland

(4) Power plant effluent near Monroe, Michigan.

(5) Detroit River and Lake St. Clair - this area was not covered by ERTS, however U-2 photos are available from the 15th and will be compared with the thermal data. The western side of Lake St. Clair was "black".

2. NOAA-2 Satellite Launch

NOAA's environmental satellite NOAA-2 was launched October 15. By early November NASA had given it an appropriate blessing and it became operational, replacing ESSA 9. The Very High Resolution Radiometer (VHRR)

has been performing in an exemplorary fashion. We are still looking for a cloud-free case over our test areas coincident with ERTS coverage. Several comparisons are being made in other areas where clouds have not been problematical.

3. CCDT has overwhelmed us from ERTS. It appears that although the switch to initiate this data flow through the U.S. Postal Service works beautifully the "OFF" button sticks. Finally, after nearly burying the whole project these tapes were shut off and those not needed returned to GSFC.

B. Expected Accomplishments Furing Next Reporting Period

1. Daedalus Thermal Imagery will become available and analysis begun.

2. Spectral Data Multiband Camera photography will become available and analysis begun.

3. Several CCDT's will be analyzed over significant targets in Lakes Ontatio and Erie - probably Rochester and Erie Island areas, respectively.

4. Whenever possible (cloud cover dependent), VHRR will be acquired during ERTS passes over test sites.

5. Planning initiated for late winter/early spring study period. This effort will investigate ice monitoring and focus on Lake Erie.

C. Problems

No noteworthy difficulties have been encountered during this study period.

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